WHAT IS CLAIMED IS:

1. An isolated nucleic acid, wherein the nucleic acid encodes a polypeptide comprising greater than 95% amino acid identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

2. The isolated nucleic acid of claim 1, wherein the polypeptide comprises greater than 97% amino acid identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

3. The isolated nucleic acid of claim 1, wherein the polypeptide comprises greater than 99% amino acid identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

4. The isolated nucleic acid of claim 1, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

5. The isolated nucleic acid of claim 1, wherein the nucleic acid comprises the nucleotide sequence of SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21 or SEQ ID NO:23.

6. The isolated nucleic acid of claim 1, wherein the nucleic acid consists of the nucleotide sequence of SEQ ID NO:17, SEQ ID NO:19, SEQ ID NO:21 or SEQ ID NO:23.

7. An isolated polypeptide comprising greater than 95% amino acid sequence identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

8. The polypeptide of claim 7, wherein the polypeptide comprises greater than 97% amino acid sequence identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

9. The polypeptide of claim 7, wherein the polypeptide comprises greater than 99% amino acid sequence identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

10. The polypeptide of claim 7, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

11. The polypeptide of claim 7, wherein the polypeptide consists of the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

12. An antibody that selectively binds to the polypeptide of claim 7.

13. An expression vector comprising the nucleic acid of claim 1.

14. A host cell transfected with the vector of claim 13.

15. A method for identifying a compound that modulates signal transduction, the method comprising the steps of:

(i) contacting the compound with a polypeptide comprising greater than 95% amino acid sequence identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22; and

(ii) determining the functional effect of the compound upon the polypeptide.

16. The method of claim 15, wherein the polypeptide comprises the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

17. A method of treating cancer, the method comprising the step of contacting a cancer cell with a therapeutically effective amount of a compound that modulates a polypeptide comprising greater than 95% amino acid sequence identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

18. The method of claim 17, wherein the compound is identified using the method of claim 15.

19. The method of claim 17, wherein the cancer is breast cancer or prostate cancer.

20. The method of claim 17, wherein the compound is an antagonist of a polypeptide comprising greater than 99% amino acid identity to the amino acid sequence of SEQ ID NO:22.

21. A method of detecting the presence of an BCA-GPCR nucleic acid or polypeptide, comprising:

(i) isolating a biological sample;

(ii) contacting the biological sample with a BCA-GPCR-specific reagent that selectively associates with either a) a nucleic acid, wherein the nucleic acid encodes a polypeptide comprising greater than 95% amino acid identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22, or b) a polypeptide comprising greater than 95% amino acid sequence identity to the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22; and,

(iii) detecting the level of BCA-GPCR-specific reagent that selectively associates with the sample.

22. The method of claim 21, wherein the BCA-GPCR-specific reagent is selected from the group consisting of BCA-GPCR-specific antibodies, BCA-GPCR-specific oligonucleotide primers, and BCA-GPCR-specific nucleic acid probes.

23. The method of claim 21, wherein the tissue is breast cancer tissue or prostate cancer tissue.

24. A method of making a polypeptide, the method comprising the step of expressing the polypeptide from a recombinant expression vector comprising a nucleic acid encoding the polypeptide, wherein the amino acid sequence of the polypeptide comprises greater than 95% amino acid identity to a polypeptide having the amino acid sequence of SEQ ID NO:18, SEQ ID NO:20, or SEQ ID NO:22.

25. A method for diagnosing a cancer in a mammal, comprising:

measuring the BCA-GPCR gene copy number in a biological sample from a region of the mammal that is suspected to be cancerous, thereby generating data for a test gene copy number; and

comparing the test gene copy number to data for a control gene copy number, wherein an amplification of the gene in the biological sample relative to the control indicates the presence of cancer in the mammal.

26. The method according to claim 25, wherein the BCA-GPCR is BCA-GPCR-3.

27. The method according to claim 25, wherein the biological sample is breast tissue or prostate tissue.

28. A method for monitoring the efficacy of a therapeutic treatment regimen in a patient, comprising:

measuring the BCA-GPCR gene copy number in a first sample of cancer cells obtained from a patient;

administering the treatment regimen to the patient;

measuring the BCA-GPCR gene copy number in a second sample of cancer cells from the patient at a time following administration of the treatment regimen; and

comparing the gene copy number in the first and the second samples, wherein a decrease in the gene copy number levels in the second sample relative to the first sample indicates that the treatment regimen is effective in the patient.

29. The method according to claim 28, wherein the cancer cells are obtained from breast tissue or prostate tissue.

30. A method for diagnosing a cancer in a mammal, comprising:

measuring the level of BCA-GPCR mRNA transcripts in a biological sample from a region of the mammal that is suspected to be cancerous, thereby generating data for a test level; and

comparing the test level to data for a control level, wherein an elevated test level of the biological sample relative to the control level indicates the presence of a cancer in the mammal.

31. The method according to claim 30, wherein the BCA-GPCR is BCA-GPCR-3.

32. The method according to claim 30, wherein the biological sample is breast tissue or prostate tissue.

33. A method for monitoring the efficacy of a therapeutic treatment regimen in a patient, comprising:

measuring the level of BCA-GPCR mRNA transcripts in a first sample of cancer cells obtained from a patient;

administering the treatment regimen to the patient;

measuring the level of BCA-GPCR mRNA transcripts in a second sample of cancer cells from the patient at a time following administration of the treatment regimen; and

comparing the mRNA transcripts in the first and the second samples, wherein a decrease in mRNA transcripts in the second sample relative to the first sample indicates that the treatment regimen is effective in the patient.

34. The method according to claim 33, wherein the cancer cells are obtained from breast tissue or prostate tissue.